

AMENDMENT(S) TO THE CLAIMS

1 – 145 (Canceled)

146. (Previously presented) A system for drying one of a tissue and a hygiene web, comprising:

a drying apparatus;

a permeable structured fabric carrying the web over said drying apparatus;

a permeable dewatering fabric contacting the web and being guided over said drying apparatus, said permeable dewatering fabric includes a vector layer which contains fibers which are equal to or greater than approximately 67 dtex; and

a mechanism for applying pressure to said permeable structured fabric, the web, and said permeable dewatering fabric at said drying apparatus.

147. (Original) The system of claim 146, wherein said permeable structured fabric is a TAD fabric, said drying apparatus including a suction roll.

148. (Original) The system of claim 146, wherein said drying apparatus includes a suction roll.

149. (Original) The system of claim 146, wherein said drying apparatus includes a suction box.

150. (Original) The system of claim 146, wherein said drying apparatus applies one of a vacuum and a negative pressure to a surface of said permeable dewatering fabric which is opposite to a surface of said permeable dewatering fabric which contacts the web.

151. (Original) The system of claim 146, the system being structured and arranged to cause an airflow first through said permeable structured fabric, then through the web, then through said permeable dewatering fabric and into said drying apparatus.

152. (Original) The system of claim 146, wherein said permeable dewatering fabric includes at least one smooth surface.

153. (Original) The system of claim 152, wherein said permeable dewatering fabric includes a felt with a batt layer.

154. (Original) The system of claim 153, wherein said batt layer includes a plurality of batt fibers, said batt fibers having a diameter equal to or less than 11 dtex

155. (Original) The system of claim 154, wherein said diameter is equal to or less than 4.2 dtex.

156. (Original) The system of claim 155, wherein said diameter is equal to or less than 3.3 dtex.

157. (Canceled).

158. (Original) The system of claim 152, wherein a specific surface of said permeable dewatering fabric is equal to or greater than 35 m²/m² felt area

159. (Original) The system of claim 158, wherein said specific surface is equal to or greater than 65 m²/m² felt area.

160. (Original) The system of claim 159, wherein said specific surface is equal to or greater than 100 m²/m² felt area.

161. (Original) The system of claim 152, wherein a specific surface of said permeable dewatering fabric is equal to or greater than 0.04 m²/g felt weight

162. (Original) The system of claim 161, wherein said specific surface is equal to or greater than 0.065 m²/g felt weight.

163. (Original) The system of claim 162, wherein said specific surface is equal to or greater than 0.075 m²/g felt weight.

164. (Original) The system of claim 152, wherein said permeable dewatering fabric has a

density of equal to or higher than 0.4 g/cm³.

165. (Original) The system of claim 164, wherein said density is equal to or higher than 0.5 g/cm³.

166. (Original) The system of claim 165, wherein said density is equal to or higher than 0.53 g/cm³.

167. (Original) The system of claim 146, wherein said permeable dewatering fabric includes a combination of different dtex fibers.

168. (Original) The system of claim 146, wherein said permeable dewatering fabric includes a plurality of batt fibers and an adhesive to supplement fiber to fiber bonding.

169. (Original) The system of claim 146, wherein said permeable dewatering fabric includes batt fibers which have at least one of low melt fibers and particles and resin treatments.

170. (Original) The system of claim 146, wherein said permeable dewatering fabric has a thickness of less than approximately 1.50 mm thick.

171. (Original) The system of claim 170, wherein said thickness is less than approximately 1.25 mm.

172. (Original) The system of claim 171, wherein said thickness is less than approximately 1.00 mm.

173. (Original) The system of claim 146, wherein said permeable dewatering fabric includes weft yarns.

174. (Original) The system of claim 173, wherein said weft yarns include multifilament yarns which are one of twisted and plied.

175. (Original) The system of claim 173, wherein said weft yarns include solid mono strands which are less than approximately 0.30 mm diameter.

176. (Original) The system of claim 175, wherein said solid mono strands are less than approximately 0.20 mm diameter.

177. (Original) The system of claim 176, wherein said solid mono strands are less than approximately 0.10 mm diameter.

178. (Original) The system of claim 173, wherein said weft yarns include one of single strand yarns, twisted yarns, cabled yarns, yarns which are joined side by side, and yarns which are generally flat shaped.

179. (Original) The system of claim 146, wherein said permeable dewatering fabric includes warp yarns.

180. (Original) The system of claim 179, wherein said warp yarns include monofilament yarns having a diameter of between approximately 0.30 mm and approximately 0.10 mm.

181. (Original) The system of claim 179, wherein said warp yarns include one of twisted and single filaments which are approximately 0.20mm in diameter.

182. (Original) The system of claim 146, wherein said permeable dewatering fabric is needle punched and includes straight through drainage channels.

183. (Original) The system of claim 146, wherein said permeable dewatering fabric is needle punched and utilizes a generally uniform needling.

184. (Original) The system of claim 146, wherein said permeable dewatering fabric includes a base fabric and a thin hydrophobic layer applied to a surface of said base fabric.

185. (Original) The system of claim 146, wherein said permeable dewatering fabric has an air permeability of between approximately 5 to approximately 100 cfm.

186. (Original) The system of claim 146, wherein said permeable dewatering fabric has an air permeability which is approximately 19 cfm or higher.

187. (Original) The system of claim 186, wherein said air permeability is approximately 35 cfm or higher.

188. (Original) The system of claim 146, wherein said permeable dewatering fabric has a mean pore diameter in the range of between approximately 5 to approximately 75 microns.

189. (Original) The system of claim 146, wherein said permeable dewatering fabric has a mean pore diameter of approximately 25 microns or higher.

190. (Original) The system of claim 189, wherein said mean pore diameter is approximately 35 microns or higher.

191. (Original) The system of claim 146, wherein said permeable dewatering fabric includes at least one synthetic polymeric material.

192. (Original) The system of claim 146, wherein said permeable dewatering fabric includes wool.

193. (Original) The system of claim 146, wherein said permeable dewatering fabric includes

a polyamide material.

194. (Original) The system of claim 193, wherein said polyamide material is polycaprolactam.

195. (Original) The system of claim 146, wherein said permeable dewatering fabric includes a woven base cloth which is laminated to an anti-rewet layer.

196. (Original) The system of claim 195, wherein said woven base cloth includes a woven endless structure which includes monofilament warp yarns having a diameter of between approximately 0.10 mm and approximately 0.30 mm.

197. (Original) The system of claim 196, wherein said diameter is approximately 0.20 mm.

198. (Original) The system of claim 195, wherein said woven base cloth includes a woven endless structure which includes multifilament yarns which are twisted or plied.

199. (Original) The system of claim 195, wherein said woven base cloth includes a woven endless structure including multifilament yarns which are solid mono strands of less than approximately 0.30 mm diameter.

200. (Original) The system of claim 199, wherein said solid mono strands are approximately

0.20 mm diameter.

201. (Original) The system of claim 199, wherein said solid mono strands are approximately 0.10 mm diameter.

202. (Original) The system of claim 146, wherein said woven base cloth includes a woven endless structure including weft yarns.

203. (Original) The system of claim 146, wherein said weft yarns includes one of single strand yarns, twisted or cabled yarns, yarns which are joined side by side, and flat shaped yarns.

204. (Original) The system of claim 146, wherein said permeable dewatering fabric includes a base fabric layer and an anti-rewet layer.

205. (Original) The system of claim 204, wherein said anti-rewet layer includes a thin elastomeric cast permeable membrane.

206. (Original) The system of claim 205, wherein said elastomeric cast permeable membrane is equal to or less than approximately 1.05 mm thick.

207. (Original) The system of claim 205, wherein said elastomeric cast permeable membrane is adapted to form a buffer layer of air so as to delay water from traveling back into the

web.

208. (Original) The system of claim 204, wherein said anti-rewet layer and said base fabric layer are connected to each other by lamination.

209-225. (Canceled)

226. (Previously presented) A system for drying a web, comprising:

a vacuum roll;

a permeable structured fabric carrying the web over said vacuum roll ;

a permeable dewatering fabric contacting the web and being guided over said vacuum roll, said permeable dewatering fabric including a vector layer which contains fibers which are equal to or greater than approximately 67 dtex; and

a mechanism for applying pressure to said permeable structured fabric, the web, and said permeable dewatering fabric at said vacuum roll.

227. (Original) The system of claim 226, wherein said mechanism includes a hood which produces an overpressure.

228. (Original) The system of claim 226, wherein said mechanism includes a belt press which is adapted to increase in speed without causing a reduction in web quality.

229. (Original) The system of claim 226, wherein said belt press includes a permeable belt.

230. (Previously presented) A method of drying a web comprising the steps of:

providing a system including:

a vacuum roll;

a permeable structured fabric carrying the web over said vacuum roll ;

a permeable dewatering fabric contacting the web and being guided over said vacuum roll,

said permeable dewatering fabric including a vector layer which contains fibers which are equal to or greater than approximately 67 dtex; and

a mechanism for applying pressure to said permeable structured fabric, the web, and said permeable dewatering fabric at said vacuum roll;

moving the web on said permeable structured fabric over said vacuum roll;

guiding said permeable dewatering fabric in contact with the web over said vacuum roll;

applying mechanical pressure to said permeable structured fabric, the web, and said permeable dewatering fabric at said vacuum roll; and

suctioning during said applying step said vacuum roll, said permeable structured fabric, the web, and said permeable dewatering fabric.

231-276. (Canceled)

277. (Previously presented) A method of drying a paper web in a press arrangement, the method comprising the steps of:

moving the paper web, disposed between at least one first fabric and at least one second fabric, between a support surface and a pressure producing element, at least one of said first fabric and said second fabric including a vector layer which contains fibers which are equal to or greater than approximately 67 dtex; and

moving a fluid through the paper web, the at least one first and second fabrics, and said support surface.

278-293. (Canceled)

294. (Previously presented) A method of pressing and drying a paper web, the method comprising the steps of:

pressing, with a pressure producing element, the paper web between at least one first fabric and at least one second fabric, at least one of said first fabric and said second fabric including a vector layer which contains fibers which are equal to or greater than approximately 67 dtex; and simultaneously moving a fluid through the paper web and the at least one first and second fabrics.

295. (Original) The method of claim 294, wherein said pressing occurs for a dwell time which is one of equal to and greater than approximately 40 ms.

296. (Original) The method of claim 295, wherein said dwell time is one of equal to and greater than approximately 50 ms.

297. (Original) The method of claim 294, wherein said simultaneously moving step occurs for a dwell time one of equal to and greater than approximately 40 ms.

298. (Original) The method of claim 297, wherein said dwell time is one of equal to and greater than approximately 50 ms.

299. (Original) The method of claim 294, wherein said pressure producing element includes a device which applies a vacuum.

300. (Original) The method of claim 299, wherein said vacuum is greater than approximately 0.5 bar.

301. (Original) The method of claim 300, wherein said vacuum is greater than approximately 1 bar.

302. (Original) The method of claim 301, wherein said vacuum is greater than approximately 1.5 bar.